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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ATTILA D. BANKI and STEPHEN C. NETEMEYER

Appeal 2009-008229
Application 10/020,033
Technology Center 2100

Decided: February 16, 2010

Before JAMES D. THOMAS, LANCE LEONARD BARRY, and STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-13, 15-28, 30, 31, and 43-46. Claims 14, 29, and 32-42 have been cancelled. An oral hearing was held on February 4, 2010. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The disclosed invention relates generally to simulating a hydrocarbon system (Spec. 1).

Independent claim 1 is illustrative:

> 1. A computer system for simulating a physical system comprising:
>
> a processor;
>
> memory coupled to the processor; and
>
> object-oriented software in a main simulation system stored in the memory, the object-oriented software configured to:
>
> a) provide a logic interface to dynamically construct logic to customize simulation of transport phenomena through a model of the physical system;
>
> b) convert the constructed logic into corresponding object-oriented code during a simulation without intervention of the simulator user;
>
> c) integrate, without intervention of the simulator user, the object-oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system, wherein the object-oriented code extends the simulation data model by creating new classes that inherit from the simulation data model, and the object-oriented code is configured to call functions of the integrated simulation system and use member data of the integrated simulation system; and
>
> d) execute the integrated simulation system.

The References

The Examiner relies upon the following references as evidence in support of the rejections:

Watts	US 6,052,520	Apr. 18, 2000

Bjarne Stroustrup, *The C++ Programming Language*, AT&T Labs (Addison-Wesley, 3rd ed. 1997) ("Stroustrup").

The Math Works, Inc., *Real-Time Workshop For Use with Simulink, User's Guide*, Version 3 (1999) ("Real-Time Workshop").

The Math Works, Inc., *Simulink Dynamic System Simulation for MATLAB, Using Simulink*, Version 3 (1999) ("Simulink").

The Rejections

1. The Examiner rejects claims 1-13, 15-18, 20, 23-28, 30, 43, and 46 under 35 U.S.C. § 103(a) as being unpatentable over Real-Time Workshop and Stroustrup.
2. The Examiner rejects claims 21, 22, 44 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Real-Time Workshop, Stroustrup, and Watts.
3. The Examiner rejects claims 19 and 31 under 35 U.S.C. § 103(a) as being unpatentable over Real-Time Workshop, Stroustrup, and Official Notice.
4. The Examiner rejects claim 44 under 35 U.S.C. § 112, 2nd paragraph as being indefinite.

ISSUE 1

Appellants assert that "the elements of Applicants' claimed subject matter . . . are not disclosed in *Stroustrup* or *Real-Time Workshop*" (App. Br. 12).

Did Appellants demonstrate that the Examiner erred in finding that the cited references disclose or suggest the invention recited in claims 1 and 20?

ISSUE 2

The Examiner finds that claim 44 recites terms that lack antecedent basis (Ans. 4).

Did Appellants demonstrate that the Examiner erred in finding that claim 44 is indefinite?

FINDINGS OF FACT

The following Findings of Facts (FF) are shown by a preponderance of the evidence.

1. Real-Time Workshop discloses "automatically [building] programs that can be run in a variety of environments" (page 1-2).
2. Real-Time Workshop discloses "[s]eamless integration with MATLAB and Simulink" (page 1-3).
3. Real-Time Workshop discloses "[a]n open and extensible architecture" (page 1-3).

PRINCIPLES OF LAW

Obviousness

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and

(3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007).

ANALYSIS

Issue 1

Claim 1 recites constructing logic for simulation of transport phenomena, converting the constructed logic to object oriented code, and integrating the converted code with a simulation system to extend a simulation data model in the simulation system including creating new classes (App. Br. 14, Claims Appendix).

Appellants argue that "there is nothing in *Real-Time Workshop* that suggests constructing logic . . . nor is there any suggestion . . . of converting constructed logic" (App. Br. 7) and that the cited references fail to disclose or suggest "extending the existing main simulation system . . . without intervention of the simulator user" (App. Br. 10) or "extending the simulation data model by creating new classes" (App. Br. 11).

The Examiner finds that Real-Time Workshop discloses constructing logic and converting the constructed logic because Real-Time Workshop, according to the Examiner, discloses "that '[y]ou can design your control system using MATLAB and Simulink and generate code from your block diagram model" (Ans. 17). Thus, the Examiner finds that the "control

system" of Real-Time Workshop is equivalent or suggestive of the claimed "logic" that is constructed and converted to object oriented code. However, even assuming that the "control system" contains logic that is "constructed" by a user, the Examiner has not demonstrated that Real-Time Workshop also discloses that the "control system" is converted or that, after conversion, the logic is integrated into a main simulation system such that a simulation data model in the main simulation system is extended by creating new classes, as required by claim 1. In fact, the Examiner has not shown that Real-Time Workshop discloses or suggests converting the "control system" to anything at all.

In addition, claim 1 requires that the logic is converted without intervention of the user. Since Real-Time Workshop discloses that a user "can design" the control system and that the user is therefore designing the system, Real-Time Workshop appears to require intervention by the user in the development of the "control system." Even assuming to be correct the Examiner's finding that Real-Time Workshop "['*…automatically builds programs…*' (page 1-2, first paragraph)]" (Ans. 5), the Examiner has not demonstrated how a user "can design" a control system without some degree of intervention or how a system can automatically design a system that the user "can design" without input from the user. In the absence of such a showing, we cannot agree that the user in Real-Time Workshop designs a control system without any form of user "intervention."

Thus, we find that rather than disclosing or suggesting constructing and converting logic (to object oriented code) without intervention of the

user, Real-Time Workshop merely discloses a user utilizing various programs to design (or "intervene" to design) a control system and does not appear to disclose or suggest converting logic (i.e., the "control system") to any other form at all.

In addition, the Examiner finds that Real-Time Workshop discloses "integrating" the constructed and converted code into a main simulation system as required by claim 1 because, according to the Examiner, Real-Time Workshop discloses "'[*s*]*eamless integration with MATLAB and Simulink*' (page 1-3, bulleted list)'" (Ans. 5). However, even assuming the "control system" as indicated by the Examiner is equivalent to the claimed constructed and converted logic/code as the Examiner states, the Examiner has not demonstrated that the "control system" (as opposed to MATLAB and Simulink) as designed by the user is integrated into a main simulation system. Similarly, the Examiner has also not demonstrated that the user constructs logic corresponding to MATLAB and Simulink and converts the MATLAB and Simulink logic (which the user supposedly constructed) to any other form, much less object oriented code, without intervention of the user.

Claim 20 recites similar features as claim 1. Accordingly, we conclude that Appellants have met their burden of showing that the Examiner erred in rejecting independent claims 1 and 20, and of claims 2-13, 15-19, 21-28, 30, 31, and 43-46, which depend therefrom.

Issue 2

Appellants do not contest the Examiner's rejection of claim 44 under 35 U.S.C. § 112, 2nd paragraph. Therefore, we affirm the Examiner's rejection *pro forma*.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that Appellants have shown that the Examiner erred in finding that the cited references disclose or suggest the invention recited in claims 1 and 20 but have failed to show that the Examiner erred in finding that claim 44 is indefinite.

DECISION

We reverse the Examiner's decision rejecting claims 1-13, 15-28, 30, 31, and 43-46 under 35 U.S.C. § 103. We affirm the Examiner's rejection of claim 44 under 35 U.S.C. § 112, 2nd paragraph.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED IN PART

msc

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